Cisco 880 Series Integrated Services Routers

The Cisco® 880 Series Integrated Services Routers combine Internet access, security, voice, and wireless services onto a single, secure device that is simple to use and manage for small businesses and enterprise small branch offices and teleworkers. The Cisco 880 Series delivers features including firewall, content filtering, VPNs, and wireless LANs (WLANs) at broadband speeds to small offices. Easy deployment and centralized management features enable enterprises or service providers to deploy the Cisco 880 Series in small branch offices or small businesses.

Product Overview

Cisco 880 Series Integrated Services Routers are fixed-configuration routers that provide collaborative business solutions for secure voice and data communication to small businesses and enterprise teleworkers. They offer concurrent broadband services over third-generation (3G), Metro Ethernet, and multiple DSL technologies to provide business continuity. Wireless 802.11n and 3G offer LAN and WAN mobility. The routers provide the performance required for concurrent services, including firewall, intrusion prevention, content filtering, and encryption for VPNs; optional 802.11g/n for mobility; and quality-of-service (QoS) features for optimizing voice and video applications. In addition, the web-based Cisco Configuration Professional configuration tool simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 880 Series Integrated Services Routers offer:

- High performance for broadband access in small offices and small branch-office and teleworker sites
- Collaborative services with secure analog, digital voice, and data communication
- Business continuity and WAN diversity with redundant WAN links: Fast Ethernet, Multimode G.SHDSL(Ethernet in the First Mile [EFM] and ATM), Multimode DSL (very-high-data-rate DSL 2 [VDSL2] and asymmetric DSL 2 and 2+ [ADSL2 and ADSL2+, respectively]), 3G, and ISDN
- Voice-enabling features:
  - Cisco Unified Communications Manager Express(5 user) which offers innovative key system and small private branch exchange (PBX) capabilities for small and medium business customers
  - Survivable Remote Site Telephony (SRST) voice continuity for enterprise small branch-office and teleworker sites
  - Cisco Unified Border Element (Cisco UBE) IP-IP voice gateway functions for connecting to Session Initiation Protocol (SIP) trunking services as a replacement for Primary Rate Interface (PRI) or foreign-exchange-office (FXO) voice connectivity to the service provider. **Note:** Cisco Unified Border Element support for the Cisco 880 Series has feature limitations as compared to the Cisco Integrated Services Routers Generation 2 (ISR G2 Routers). Go to http://www.cisco.com/go/cube for the full set of Cisco Unified Border Element features. Cisco Unified Border Element limitations on Cisco 880 Routers are listed later in this document.

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- Enhanced security, including:
  - Firewall with advance application and control for email, Instant Messaging (IM), and HTTP traffic
  - Site-to-site remote-access and dynamic VPN services: IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN with onboard acceleration, and Secure Sockets Layer (SSL) VPN
  - Intrusion prevention system (IPS): An inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks
  - Content filtering: A subscription-based integrated security solution that offers category-based reputation rating; keyword blocking; and protection against adware, malware, spyware, and Uniform Resource Locator (URL) blocking
- Four-port 10/100 Fast Ethernet managed switch with VLAN support; two ports support Power over Ethernet (PoE) for powering IP phones or external access points
- Secure 802.11g/n access-point option based on draft 802.11n standard with support for autonomous or Cisco Unified WLAN architectures
- CON/AUX port for console or external modem
- One USB 1.1 port for security eToken credentials, booting from USB, and loading configuration
- Easy setup, deployment, and remote-management capabilities through web-based tools and Cisco IOS® Software

Figure 1 shows a Cisco 881 Integrated Services Router.

Figure 1. Cisco 881 Integrated Services Router with Integrated 802.11n Access Point

Tables 1 and 2 list the routers that currently make up the Cisco 880 data, voice and SRST series, respectively.

Table 1. Cisco 880 Series Data Models

Models	WAN Interface	LAN Interfaces	802.11g/n Option	Embedded 3G	Integrated ISDN Dial Backup
Cisco 881	10/100-Mbps Fast Ethernet	4-port 10/100-Mbps managed switch	Yes (Cisco 881W)	Yes (Cisco 881G)	-
Cisco 886VA	Multimode VDSL2/ADSL2/2+ over ISDN	4-port 10/100-Mbps managed switch	Yes (Cisco 886VAW)	Yes (Cisco 886VAG)	Yes
Cisco 887VA	Multimode VDSL2/ADSL2/2+ over basic telephone service	4-port 10/100-Mbps managed switch	Yes (Cisco 887VAW)	Yes (Cisco 887VAG)	No
Cisco 886	ADSL2/2+ over ISDN (Annex B)	4-port 10/100-Mbps managed switch	Yes (Cisco 886W)	Yes (Cisco 886G)	Yes
Cisco 887	ADSL2/2+ over basic telephone service	4-port 10/100-Mbps managed switch	Yes (Cisco 887W)	Yes (Cisco 887G)	Yes

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Models	WAN Interface	LAN Interfaces	802.11g/n Option	Embedded 3G	Integrated ISDN Dial Backup
	(Annex A)				
Cisco 887V	VDSL2 over basic telephone service	4-port 10/100-Mbps managed switch	Yes (Cisco 887V)	Yes (Cisco 887VG)	Yes
Cisco 888	G.SHDSL (ATM)	4-port 10/100-Mbps managed switch	Yes (Cisco 888W)	Yes (Cisco 888G)	Yes
Cisco 888E	G.SHDSL (EFM)	4-port 10/100-Mbps managed switch	Yes (Cisco 888W)	Yes (Cisco 888EG)	Yes
Cisco 888EA	Multimode G.SHDSL (EFM/ATM)	4-port 10/100-Mbps managed switch	No	No	No

Table 2. Cisco 880 Series Voice Models

Models	WAN Interface	LAN Interfaces	Voice Ports	802.11g/n Option
Cisco881V	10/100-Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	4 foreign-exchange-station (FXS) ports, 2 Basic Rate Interface(BRI) ports and 1 foreign-exchange-office (FXO) port for public-switched-telephone-network (PSTN) fallback	No
Cisco887VA-V	Multi-mode VDSL2/ADSL2/2+ over POTS	4-port 10/100 Mbps managed switch	4 foreign-exchange-station (FXS) ports and 2 Basic Rate Interface(BRI) ports	Yes (Cisco887VA-V-W-K9)
Cisco 881 SRST	10/100-Mbps Fast Ethernet	4-port 10-/100-Mbps managed switch	4 foreign-exchange-station (FXS) ports and 1 FXO port for public-switched-telephone-network (PSTN) fallback	Yes (Cisco 881 SRSTW)
Cisco 888 SRST	G.SHDSL	4-port 10-/100-Mbps managed switch	4 FXS ports and 1 Basic Rate Interface (BRI) port for PSTN fallback	Yes (Cisco 888 SRSTW)
Cisco 881 with Cisco Unified Border Element	10/100-Mbps Fast Ethernet	4-port 10-/100-Mbps managed switch	No	No
Cisco 886VA with Cisco Unified Border Element	Multimode VDSL2/ADSL2/2+ over ISDN	4-port 10-/100-Mbps managed switch	No	No
Cisco 887VA with Cisco Unified Border Element	Multimode VDSL2/ADSL2/2+ over basic telephone service	4-port 10-/100-Mbps managed switch	No	No
Cisco 888E with Cisco Unified Border Element	G.SHDSL (EFM)	4-port 10-/100-Mbps managed switch	No	No
Cisco 888 with Cisco Unified Border Element	G.SHDSL (ATM)	4-port 10-/100-Mbps managed switch	No	No

The Cisco 880 Series is ideal for small branch offices and teleworkers who need to be connected to larger enterprise networks as well as small businesses for either voice or data applications. These routers help extend corporate networks to secure remote sites while giving users access to the same applications found in a corporate office. When users require WLAN access, visibility and control of network security are even more critical at the remote site. The Cisco 880 Series meets this need with a single device that combines integrated 802.11g/n capabilities with security features such as Wi-Fi Protected Access (WPA), including authentication with IEEE 802.1x with Cisco Extensible Authentication Protocol (LEAP) and Protected EAP (PEAP) and encryption with WPA Temporal Key Integrity Protocol (TKIP). (Refer to the wireless solution overview and security data sheet for more information. The Cisco 880 Series models that include the integrated access point can use either autonomous or Cisco Unified WLAN modes. In Cisco Unified WLAN mode, as part of an enterprise WLAN architecture, all WLAN functions are centrally managed through Cisco Wireless LAN Controllers and the Cisco Wireless Control System (WCS).

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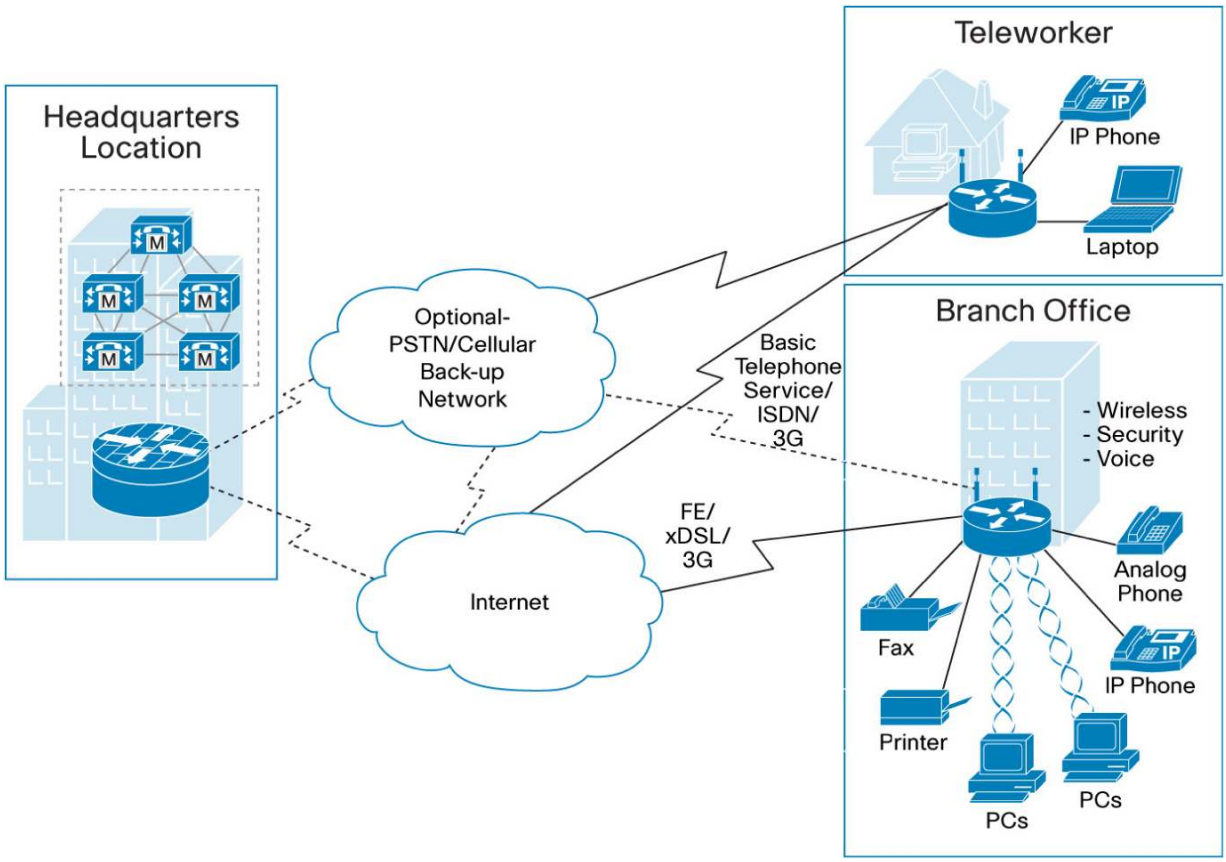
Service providers and value-added resellers can take advantage of the Cisco 880 Series to provide a true business-class broadband service. Business customers are using broadband access to connect to the Internet or to connect offices together, and they require a platform that incorporates voice and security without sacrificing performance. The Cisco 881V and Cisco 887VA-V voice routers offer industry-leading voice gateway capability with the ability to layer of Cisco Unified Communications Manager Express or SRST as required. Many of these customers are connecting computers in offices through WLANs; having a single device for both WAN and WLAN access provides a new option for managed services. These customers also require a higher level of support to keep their networks operational. Services with these customers should be simple to set up, while allowing a level of remote management and troubleshooting to quickly address support inquiries. The Cisco 880 Series meets the requirements of small offices and managed services providers.

Figure 2 shows deployment scenarios.

Figure 2. Deployment Scenarios



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Applications

The Cisco 880 Series is ideally suited for deployment in a small office or in a small office that is part of a large network, most often with a secure VPN connection. These types of offices can include the following:

- Small remote office: The Cisco 880 Series can connect users in a small remote office, such as an insurance, lawyer, or sales office. When connecting to the main office, VPN encryption and integrated security such as firewall and intrusion prevention protect the network at the perimeter. The Cisco 880 with the Cisco Unified Border Element Series can also support connection to SIP trunking voice-over-IP (VoIP) services provided by the service provider. Additionally, IT managers can centrally manage the remote site to quickly troubleshoot any network problems. For added reliability, customers can also use the integrated 3G or ISDN backup or connect through an external modem if the primary broadband link fails. Integrated secure unified WLAN connectivity simplifies the deployment and management devices at the remote site. Redundant WAN links offer business continuity, enabling nondisruptive business operation.
- Virtual office: The Cisco 880 Series is ideal for corporate teleworkers who have a mix of broadband connection types such as DSL, 3G, and Metro Ethernet. The Cisco 880 Voice gateway and SRST Series provides a secure virtual office with all the collaborative services such as data, voice, and fax services. SRST helps ensure voice services are operational in case of WAN link failure, and redundant WAN links help ensure business continuity. QoS features in the Cisco 880 Series allow for connection of an IP or analog phone to the router, giving voice traffic precedence over data applications. Integrated WLAN support in the Cisco 880 Series helps ensure that if wireless connectivity is used it is secure. (Refer to the Cisco Virtual Office Solution, http://www.cisco.com/go/cvo, for more information.)
- Remote call-center agent: Similar to teleworking applications, this solution extends the Cisco IP Contact Center solution for telephone call-center agents to remote sites. With a high-quality, secure connection through the Cisco 880 Series, call-center agents can be dispersed away from costly call-center facilities while maintaining secure and productive voice and data access in their homes. SRST and business-continuity solutions in the Cisco 880 Series provide reliability and continuous business operation. Alternatively, the remote call-center agent can be provided with SIP trunking service with service demarcation provided by Cisco Unified Border Element features and the central call center can forward calls to the remote call-center agent through the remote-office SIP trunk.
- Retail VPN: Retail stores migrating from dialup connections for point-of-sale transactions can use the Cisco 880 Series to take advantage of low-cost broadband access with the required security to comply with payment-card-industry (PCI) and other data security requirements. They can then add multiple devices and applications to the store network to take advantage of the increased bandwidth and also incorporate optional WLAN support to enable secure mobility and enhance productivity.
- Managed services: Service providers and value-added resellers can use the Cisco 880 Series as a platform to offer differentiated business-class security, voice, and WLAN services for small business customers. With built-in analog and digital voice ports and the ability to upgrade to a 5 user Cisco Unified Communications Manager Express IP PBX, service providers can now offer all the Unified communications benefits to small and medium businesses. The SIP trunking connectivity features of the Cisco 880 with Cisco Unified Border Element Series Router can provide the high-quality VoIP service needed through the service provider cloud.

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Features and Benefits

Table 3 lists the features and benefits of the Cisco 880 Series Integrated Services Routers.

Table 3. Features and Benefits of Cisco 880 Series Routers

Feature	Benefit
Increased performance to run concurrent services	• Cisco 880 Series Router performance allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, video, and wireless services.
Enhanced security	• An integrated stateful and application inspection firewall provides network perimeter security. • High-speed IPsec 3DES and AES encryption offers data privacy over the Internet. • Intrusion prevention enforces security policy in a larger enterprise or service provider network. • Content filtering offers category-based URL classification and blocking, thus providing increased productivity and better use of company resources.
WAN diversity	• Multiple WAN links include Fast Ethernet, multimode VDSL2/ADSL2/2+, multimode G.SHDSL, 3G, and ISDN.
Redundant WAN links	• Redundant WAN links provide business continuity and WAN diversity with.
Four-port 10-/100-Mbps managed switch	• The Cisco 880 Series allows for connection of multiple devices in a small office, with the ability to designate a port as the network edge. • An optional external PoE adapter powers IP phones and external access points to avoid individual power supplies or power injectors. • VLANs allow for secure segmentation of network resources.
CON/AUX port	• A single dual-purpose port provides direct connection to a console or external modem for management or backup access points.
Optional 802.11g/n access point	• This broadband router offers a secure integrated access point in a single device. • This integrated Wi-Fi access point offers IEEE 802.11n 2.0 standard support for mobile access to high-bandwidth data, voice, and video applications through the use of multiple-input, multiple-output (MIMO) technology that provides increased throughput, reliability, and predictability. • The Cisco 880 Series supports both autonomous and unified modes.
Real-time clock	• A built-in real-time clock maintains an accurate date and time for applications that require an accurate time stamp, such as logging and digital certificates.
Voice Gateway (supported on 881V and 887VA-V voice models)	• Provides voice gateway functionality with the ability to upgrade to a 5 user Cisco Unified Communications Manager Express or 5 user SRST)
SRST (supported on SRST voice models)	• SRST provides business continuity for voice when the WAN link fails by switching calls to the PSTN.
Cisco Unified Border Element (supported on Cisco Unified Border Element voice models)	• Support for SIP trunk connectivity, including demarcation and interworking, is based on a Cisco Unified Border Element feature license. • Transcoding of media is **not** supported on the Cisco 880 Series Cisco Unified Border Element feature set.
Cisco Configuration Professional	• Cisco Configuration Professional uses smart wizards and task-based tutorials, which resellers and customers can use to quickly and easily deploy, configure, and monitor a Cisco access router without requiring knowledge of the Cisco IOS Software command-line interface (CLI).

Unified wireless management	• Configuration and management of access points is automated and simplified without manual intervention.
	• A unified hybrid remote-edge access point (HREAP) provides the following:
	  ◦ WLAN services to remote and branch offices without deploying a WLAN controller at each location
	  ◦ Central configuration and control of unified WLAN services for remote offices through a WAN link
	  ◦ Flexibility in setting up wireless access at remote locations by specifying how traffic is to be bridged or tunneled

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Summary

Cisco 880 Series Integrated Services Routers combine increased network performance with advanced security to allow small-office customers to get the most from their broadband connections for both data and voice applications. With models supporting different broadband technologies such as DSL, 3G, and Metro Ethernet, the Cisco 880 Series can be deployed at any small-office location. Optional integrated 802.11g/n wireless capabilities provide true business-class WAN and WLAN access in a single solution. With the Cisco 880 Series, enterprise IT managers and service providers can take advantage of a solution that can be easily set up at the remote site and can be centrally managed to reduce ongoing operational costs.

Product Specifications

Cisco IOS Software Support

Table 4 lists the minimum Cisco IOS Software releases and the default Cisco IOS Software feature sets.

Table 4. Cisco IOS Software Releases and Default Cisco IOS Software Feature Sets

Models	Universal Image	Default Feature Set	First Cisco IOS Software Release
Cisco 881	Data	Advanced Security	12.4(20)T
Cisco 881 SEC, Embedded 3G	Data	Advanced IP	12.4(20)T, 15.1(4)M
Cisco 881V	Voice	Advanced IP*	15.1(4)M
Cisco 881 SRST	Voice	Advanced IP*	12.4(20)T
Cisco 886VA and 887VA	Data	Advanced Security	15.1(2)T
Cisco 886VA and 887VA WLAN	Data	Advanced Security	15.1(3)T
Cisco 886VA and 887VA Embedded 3G	Data	Advanced Security	15.1(4)M
Cisco 886 and 887	Data	Advanced Security	12.4(22)YB3
Cisco 886 and 887 SEC, 3G	Data	Advanced IP	12.4(22)YB3
Cisco 887V	Data	Advanced Security	12.4(22)YB, 12.4(24)T
Cisco 887V SEC, 3G	Data	Advanced IP	12.4(22)YB, 12.4(24)T
Cisco 887V WLAN	Data	Advanced Security	15.0(1)M
Cisco 887V 3G	Data	Advanced IP	15.0(1)M
Cisco 887VA-V	Voice	Advanced IP	15.1(4)M
Cisco 887VA-V-W	Voice	Advanced IP	15.1(4)M
Cisco 888	Data	Advanced Security	12.4(20)T
Cisco 888 SEC, 3G	Data	Advanced IP	12.4(20)T, 15.1(4)M
Cisco 888 SRST	Voice	Advanced IP*	12.4(20)T
Cisco 888E	Data	Advanced Security	15.1(1)T
Cisco 888E Embedded 3G	Data	Advanced IP	15.1(4)M
Cisco 888EA	Data	Advanced Security	15.2(2)T
Cisco 881, 886VA, 887VA, 888, 888E with Cisco Unified Border Element	Voice	Advanced IP	15.1(4)M
Access-point software (ap801)	-	-	12.4(10b)JA3

* Cisco 881V, 887VA-V, 881 SRST and 888 SRST run the Cisco 880 voice universal image, which shares the same data and security features as the Advanced IP feature sets of Cisco 880 data models.

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Tables 5 and 6 list software features of the Cisco 880 Series.

Table 5. Cisco IOS Software Features on Cisco 880 Series: Advanced Security Feature Set (Default)

Feature	Description
IP and IP services features	• Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2) • Generic routing encapsulation (GRE) and Multipoint GRE (MGRE) • Cisco Express Forwarding • Standard 802.1d Spanning Tree Protocol • Layer 2 Tunneling Protocol (L2TP) • Network Address Translation (NAT) • Dynamic Host Configuration Protocol (DHCP) server, relay, and client • Dynamic Domain Name System (DNS) • DNS Proxy • DNS Spoofing • Access control lists (ACLs)
ATM features (ADSL and G.SHDSL ATM models only)	• ATM Variable Bit Rate real-time (VBR-rt) • ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate non-realtime (VBR-nrt) • ATM operations, administration, and maintenance (OA&M) support for F5 Continuity Check; segment and end-to-end loopback; and Integrated Local Management Interface (ILMI) support • TX ring adjustment • Virtual-circuit (VC) bundling • Per-VC queuing • Per-VC traffic shaping • 10 ATM virtual circuits on the 886, 887, and 888 models • 4 ATM virtual circuits on the 886VA and 887VA models • RFCs 1483 and 2684 • Point-to-Point Protocol over ATM (PPPoA) • PPP over Ethernet (PPPoE)
Switch features	• Auto Media Device In/Media Device Cross-Over (medium dependent interface (MDI)/MDI crossover (MDX) • Eight 802.1Q VLANs • MAC filtering • Two-port 802.3af and Cisco compliant PoE • Switched Port Analyzer (SPAN) • Storm Control • Smartports
Security features	Secure connectivity: • SSL VPN for secure remote access • Hardware-accelerated DES, 3DES, AES 128, AES 192, and AES 256 • Public-key-infrastructure (PKI) support • 20 IPsec tunnels • Cisco Easy VPN Client and Server • NAT transparency Zone-based policy firewall: • Stateful inspection transparent firewall • Advanced application inspection and control • Secure HTTP (HTTPS), FTP, and Telnet authentication proxy • Dynamic and static port security

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Feature	Description
QoS features	• Low-Latency Queuing (LLQ) • Weighted Fair Queuing (WFQ) • Class-Based WFQ (CBWFQ) • Class-Based Traffic Shaping (CBTS) (on Fast Ethernet WAN ports and DSL ports in Packet Transport Mode [PTM] only) • Class-Based Traffic Policing (CBTP) • Policy-Based Routing (PBR) • Class-Based QoS MIB • Class of service (CoS)-to-differentiated services code point (DSCP) mapping
Management features	• Cisco Configuration Professional • Cisco Configuration Express • Cisco Configuration Engine support • Cisco AutoInstall • IP service-level agreement (SLA) • Cisco IOS Embedded Event Manager (EEM) • CiscoWorks • Cisco Security Manager • Telnet, Simple Network Management Protocol Version 3 (SNMPv3), Secure Shell (SSH) Protocol, CLI, and HTTP management • RADIUS and TACACS+ • Out-of-band management with ISDN S/T port or external modem through virtual auxiliary port • Cisco WCS for management of unified access points in models supporting WLAN
High-availability features	• Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • Multigroup HSRP (MHSRP) • Dial backup with external modem through virtual auxiliary port • Dial backup with ISDN S/T port (select DSL models only) • 3G backup (3G models only)
Number of recommended users	20

Table 6. Cisco IOS Software Features on Cisco 880 Series: WLAN Features (Available with Wireless Option)

Feature	Description
WLAN hardware	• IEEE 802.11n draft 2.0 standards-based access point with 802.11 b/g compatibility • Automatic rate selection for 802.11g/n • Captive omnidirectional 2-dBi gain dipole antennas • 2 x 3 MIMO radio operation • Removable antennas on Cisco 881W models • Wi-Fi 802.11n Draft v2.0 certified
WLAN software features	• Autonomous or unified access point • Cisco WCS support for monitoring of autonomous-mode access points • Option to maximize throughput or maximize range • Software-configurable transmit power • Radio roles, including access point, root bridge, nonroot bridge, and workgroup bridge • Wi-Fi Multimedia (WMM) certification • Traffic specifications (TSPEC) Call Admission Control (CAC) to ensure voice quality is maintained • Unscheduled Automatic Power Save Delivery (UPSD) to reduce latency

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Feature	Description
WLAN security features	• Standard 802.11i • WPA and AES (WPA2) • EAP authentication: Cisco LEAP, PEAP, Extensible Authentication Protocol Transport Layer Security (EAP TLS), Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), Extensible Authentication Protocol-Subscriber Information Module (EAP-SIM), Extensible Authentication Protocol-Message Digest Algorithm 5 (EAP-MD5), and Extensible Authentication Protocol-Tunneled TLS (EAP-TTLS) • Static and dynamic Wired Equivalent Privacy (WEP) • Temporal Key Integrity Protocol/Simple Security Network (TKIP/SSN) encryption • MAC authentication and filter • User database for survivable local authentication using LEAP and EAP-FAST • Configurable limit to the number of wireless clients • Configurable RADIUS accounting for wireless clients • Pre-shared keys (PSKs) (WPA-small office or home office [WPA-SOHO])
Certifications	
Service set identifiers (SSIDs)	16
Wireless VLANs	8
Encrypted wireless VLANs	8
Multiple broadcast service set identifiers (MBSSIDs)	16

Cisco IOS Software Advanced IP Services Feature Set (Optional Software Upgrade)

The Advanced IP Services software image has all the features of the Advanced Security software image with the addition of the features listed in Tables 7 through 10.

Table 7. Cisco IOS Software Features on Cisco 880 Series: Advanced IP Services Feature Set (Optional Software Upgrade)

Feature	Description
IP and IP services features	• IPv4 and IPv6 Multicast • Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) • Virtual Route Forwarding (VRF) Lite • Next Hop Resolution Protocol (NHRP) • Layer 2 Tunneling Protocol Version 3 (L2TPv3) • Bidirectional Forwarding Detection (BFD) • Web Cache Communication Protocol (WCCP)
Switch features	• Internet Group Management Protocol Version 3 (IGMPv3) snooping • 802.1x
Security features	Secure connectivity: • DMVPN • Tunnel-less Group Encrypted Transport VPN • IPsec stateful failover • VRF-aware IPsec • IPsec over IPv6 • Adaptive control technology • SIP application layer gateway Cisco IOS Firewall: • Firewall stateful failover • VRF-aware firewall

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Feature	Description
	Content Filtering: • Subscription-based content filtering with Trend Micro • Support for Websense and SmartFilter • Cisco IOS Software black and white lists Integrated threat control: • IPS • Control Plane Policing • Flexible Packet Matching • Network foundation protection
QoS features	• Class-Based Weighted Random Early Detection (CBWRED) • Network-Based Application Recognition (NBAR) • Link fragmentation and interleaving (LFI) • Resource Reservation Protocol (RSVP) • Real-Time Transport Protocol (RTP) header compression (cRTP) • Differentiated Services (DiffServ) • QoS preclassify and prefragmentation • Hierarchical QoS (HQoS)
Metro Ethernet features	• Ethernet Operations, Administration, and Maintenance (Ethernet OAM) • Ethernet Local Management Interface (Ethernet LMI) • Hierarchical QoS (HQoS)
IPv6 features	• IPv6 addressing architecture • IPv6 name resolution • IPv6 statistics • IPv6 translation: Transport packets between IPv6-only and IPv4-only endpoints (NAT-PT) • Internet Control Message Protocol Version 6 (ICMPv6) • IPv6 DHCP
Unified WLAN management	Unified access-point features: • Supported by wireless LAN controller and Cisco WCS • Configurable local or central switching for HREAP mode • Radio management through Cisco WCS • Transparent roaming with Mobility Groups

Table 8. Cisco IOS Software Features on Cisco 880V Series: Advanced IP Services Feature Set

Feature	Description
Cisco Voice Gateway	4 FXS ports and 2 Basic Rate Interface (BRI) port for PBX connectivity. 1 FXO port is available on the Cisco881V SKU
Cisco UCME/SRST version	Ability to upgrade to 5 user license of CME/SRST - version 8.6 and later are supported
Call-control signaling	H.323 Versions 1, 2, 3, and 4, Media Gateway Control Protocol (MGCP) 0.1 and 1.0, Skinny Client Control Protocol (SCCP), and SIP call-control protocols are supported.
ITU standard voice codecs	G.711, G.729, G.729a/b, G.723.1, G.726, and G.728, which are standards-based compression technologies allowing transmission of voice across IP, are supported. The G.711 standard employs 64-kbps pulse code modulation (PCM) using either mu-law or a-law. Other codecs employ lower bit rates.
Cisco Unified Communications Manager support	For SRST features for IP phones, refer to the SRST data sheet at: http://www.cisco.com/en/US/products/sw/voicesw/ps2169/products_data_sheets_list.html. Cisco Unified Communications Manager support for analog and digital ports come with Releases 7.1(5), 8.5(1), and 8.6(2)
Telephony interface signaling support	Cisco 880 V supports the following signaling protocols: • FXS loop-start and ground-start signaling • FXO • Inbound signaling (such as dual-tone multifrequency [DTMF] and multifrequency support) • BRI QSIG

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Feature	Description
Voice features	• Echo cancellation: This feature cancels echo on tail circuits up to 64 msec (configurable tail length). • Silence suppression and voice activity detection (VAD): Bandwidth is used only when someone is speaking. During silent periods of a phone call, bandwidth is available for data traffic. • Comfort-noise generation: This feature reassures the phone user that the connection is being maintained, even when no voice packets are being transmitted. • Caller ID support: Per-port caller ID (with per-call unblocking) is configurable over analog FXS. • Dial-plan mapping: This feature simplifies configuration and management through automatic mapping of dialed phone numbers to IP addresses.
Voice port-specific features	• FXS: FXS provides battery polarity reversal detection and initiation for disconnect supervision and far-end answer supervision. • ISDN BRI network side and phantom power: The BRI port provides the ability to connect a private branch exchange (PBX) or private automatic branch exchange (PABX) configured as user side directly to the router. It also provides phantom power to accommodate equipment that requires it. • LED indicators show voice-processing resources and port status.
Fax and modem	• Fax and modem pass-through allows fax and modem traffic to pass through a voice port. • Fax Relay provides a more robust protocol for fax transmission over packet networks. It also supports the T.37 and T.38 fax protocols.
High-performance flexible digital-signal-processor (DSP) architecture	• Channel capacity: Cisco 880 V supports up to four voice channels. • Flexible DSP architecture: There is no need to specify codec complexity at configuration. An appropriate codec is dynamically selected when a call is established, while allocating DSP resources optimally. • Feature upgrades: The DSP architecture allows for addition of new features through simple code updates.

Table 9. Cisco IOS Software Features on Cisco 880 SRST Series: Advanced IP Services Feature Set

Feature	Description
Cisco SRST version	SRST 7.0 and later are supported.
Call-control signaling	H.323 Versions 1, 2, 3, and 4, Media Gateway Control Protocol (MGCP) 0.1 and 1.0, Skinny Client Control Protocol (SCCP), and SIP call-control protocols are supported.
ITU standard voice codecs	G.711, G.729, G.729a/b, G.723.1, G.726, and G.728, which are standards-based compression technologies allowing transmission of voice across IP, are supported. The G.711 standard employs 64-kbps pulse code modulation (PCM) using either mu-law or a-law. Other codecs employ lower bit rates.
Cisco Unified Communications Manager support	For SRST features for IP phones, refer to the SRST data sheet at: http://www.cisco.com/en/US/products/sw/voicesw/ps2169/products_data_sheets_list.html. Cisco Unified Communications Manager support for analog and digital ports comes with Releases 6.1(3), 7.0(2), and 7.1(3).
Telephony interface signaling support	Cisco 880 SRST supports the following signaling protocols: • FXS loop-start and ground-start signaling • FXO • Inbound signaling (such as dual-tone multifrequency [DTMF] and multifrequency support) • BRI QSIG
Voice features	• Echo cancellation: This feature cancels echo on tail circuits up to 64 msec (configurable tail length). • Silence suppression and voice activity detection (VAD): Bandwidth is used only when someone is speaking. During silent periods of a phone call, bandwidth is available for data traffic. • Comfort-noise generation: This feature reassures the phone user that the connection is being maintained, even when no voice packets are being transmitted. • Caller ID support: Per-port caller ID (with per-call unblocking) is configurable over analog FXS. • Dial-plan mapping: This feature simplifies configuration and management through automatic mapping of dialed phone numbers to IP addresses.
Voice port-specific features	• FXS: FXS provides battery polarity reversal detection and initiation for disconnect supervision and far-end answer supervision. • ISDN BRI network side and phantom power: The BRI port provides the ability to connect a private branch exchange (PBX) or private automatic branch exchange (PABX) configured as user side directly to the router. It also provides phantom power to accommodate equipment that requires it. • LED indicators show voice-processing resources and port status.
Fax and modem	• Fax and modem pass-through allows fax and modem traffic to pass through a voice port. • Fax Relay provides a more robust protocol for fax transmission over packet networks. It also supports the T.37 and T.38 fax protocols.

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Feature	Description
High-performance flexible digital-signal-processor (DSP) architecture	• Channel capacity: Cisco 880 SRST supports up to four voice channels. • Flexible DSP architecture: There is no need to specify codec complexity at configuration. An appropriate codec is dynamically selected when a call is established, while allocating DSP resources optimally. • Feature upgrades: The DSP architecture allows for addition of new features through simple code updates.

Table 10. Cisco IOS Software Features on Cisco 880 Series with Cisco Unified Border Element: Advanced IP Services Feature Set

Feature	Description
Cisco Unified Border Element version	Cisco Unified Border Element 7.0 and later are supported.
Call-control signaling	H.323 Versions 1, 2, 3, and 4, MGCP 0.1 and 1.0, SCCP, and SIP call-control protocols are supported.
ITU standard voice codecs	G.711, G.729, G.729a/b, G.723.1, G.726, and G.728, which are standards-based compression technologies that allow transmission of voice across IP, are supported. The G.711 standard employs 64-kbps pulse code modulation (PCM) using either mu-law or a-law. Other codecs employ lower bit rates.
Cisco Unified Communications Manager support	For SRST features for IP phones, refer to the SRST data sheet at: http://www.cisco.com/en/US/products/sw/voicesw/ps2169/products_data_sheets_list.html. Cisco Unified Communications Manager support for analog and digital ports comes with Releases 6.1(3), 7.0(2), and 7.1(3).
Telephony interface signaling support	Cisco 880 SRST supports the following PSTN trunk signaling protocols: • FXS loop-start and ground-start signaling • FXO • Inbound signaling (such as dual-tone multifrequency [DTMF] and multifrequency support) • BRI QSIG Cisco 880 Cisco Unified Border Element supports the following VoIP trunk signaling protocols: • Up to 15 SIP-to-SIP sessions. (no H.323 support) **Note:** The Cisco 880 with Cisco Unified Border Element does **not** include DSP feature support such as transcoding or transrating. **Note:** The Cisco 880 with Cisco Unified Border Element does **not** support concurrent operation of SRST or Cisco Unified Communications Manager Express.
Voice features	• Echo cancellation: This feature cancels echo on tail circuits up to 64 msec (configurable tail length). • Silence suppression and VAD: Bandwidth is used only when someone is speaking. During silent periods of a phone call, bandwidth is available for data traffic. • Comfort-noise generation: This feature reassures the phone user that the connection is being maintained, even when no voice packets are being transmitted. • Caller ID support: Per-port caller ID (with per-call unblocking) is configurable over analog FXS. • Dial-plan mapping: This feature simplifies configuration and management through automatic mapping of dialed phone numbers to IP addresses.
Voice port-specific features	• FXS: FXS provides battery polarity reversal detection and initiation for disconnect supervision and far-end answer supervision. • ISDN BRI network side and phantom power: The BRI port provides the ability to connect a PBX or PABX configured as user side directly to the router. It also provides phantom power to accommodate equipment that requires it. • LED indicators show voice-processing resources and port status.

System Specifications

Tables 11 and 12 list the system specifications for the Cisco 880 Series Routers.

Table 11. System Specifications

Feature	Description
Default DRAM	• 256 MB on Cisco 880 Series data models • 512 MB on Cisco 880 Series WLAN, embedded 3G wireless WAN (WWAN), Voice and SRST/Cisco Unified Border Element models
Maximum DRAM	• 768 MB on Cisco 880 Series data, voice and Cisco Unified Border Element models

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Feature	Description
	• 1024 MB on Cisco 880 Series WLAN
Default and maximum flash memory	• 128 MB on Cisco 880 Series data, embedded 3G WWAN, and Cisco Unified Border Element models • 256 MB on Cisco 880 Series Voice and SRST models
WAN	• Fast Ethernet • Multimode VDSL2 and ADSl2/2+ over ISDN with ISDN backup • Multimode VDSL2 and ADSl2/2+ over basic telephone service • ADSL2/2+ over ISDN with ISDN backup • ADSL2/2+ over basic telephone service with ISDN backup • VDSL2 over basic telephone service with ISDN backup • Multimode G.SHDSL (2- and 4-wire support) with ISDN backup • Fast Ethernet and 3G WAN for Code Division Multiple Access (CDMA) and high-speed downlink packet access (HSDPA)
LAN switch	Managed 4-port 10/100BASE-T with autosensing MDI/MDX for auto crossover
Standard 802.11g/n access point based on IEEE 802.11n draft 2.0 standard	Optional on all models
Console or auxiliary port	RJ-45
One USB 1.1 port for advanced security features such as security tokens or USB flash memory	• One USB 1.1 port on Cisco 880 Series Routers • USB devices supported: ◦ USB eTokens ◦ USB flash memory **Note:** The USB 1.1 port cannot be used for connecting external devices other than those specified at: http://www.cisco.com/en/US/prod/collateral/modules/ps6247/product_data_sheet0900aecd80232473.html.
ISDN BRI S/T	Available on: • Cisco 886, 886VA, 887, 887V, 888, and 888EA for out-of-band management and dial backup or primary
3G express card modem	Available on: • Cisco 881G, 886G, 887G, 887VG, and 888G for out-of-band management and backup or primary • Cisco 888G for out-of-band management and backup or primary **Note:** Cisco 887VG currently ships with HSPA modem only.
External power supply	Universal 100 to 240 VAC input; 60W, 12 VDC output
Physical dimensions and weight	Product dimensions, nonwireless models (H x W x D): • 1.9 x 12.8 x 9.8 in. (48 x 325 x 249 mm) (includes rubber feet) • 1.75 x 12.8 x 9.8 in. (44 x 325 x 249 mm) (without rubber feet) Product dimensions, wireless models (H x W x D): • 1.9 x 12.8 x 10.4 in. (48 x 325 x 264 mm) (includes rubber feet) • 1.75 x 12.8 x 10.4 in. (44 x 325 x 264 mm) (without rubber feet; excludes antennas) • Weight: 5.5 lb (2.5 kg) maximum
Power	Product power specifications: • AC input voltage: 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 60W • Output voltages: 12 VDC Optional internal PoE with external adapter: • Maximum output power: 80W • External output voltage: 48 VDC
Approvals and compliance	Emissions: • 47 CFR Part 15: 2006 • CISPR22: 2005 • EN300386: V1.3.3: 2005 • EN55022: 2006 • EN61000-3-2: 2000 [Inc amd 1 and 2] • EN61000-3-3: 1995 [+ amd 1: 2001]

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Feature	Description
	• ICES-003 Issue 4: 2004 • KN 22: 2005 • VCCI: V-3/2006.04 Immunity: • CISPR24: 1997 [+ amd 1 and 2] • EN300386: V1.3.3: 2005 • EN50082-1: 1992 • EN50082-1: 1997 • EN55024: 1998 [+ amd 1 and 2] • EN61000-6-1: 2001 The following are supported on teleworker models: • AS/NRZ 3548: 1992 Class B • CFR 47 Part 15 Class B • EN60555-2 Class B • EN55022 Class B • ICES-003, Issue 2, Class B, April 1997S
Certifications	
Environmental operating range	• Nonoperating temperature: -4 to 149℉ (-20 to 65℃) • Nonoperating humidity: 5 to 95% relative humidity (noncondensing) • Nonoperating altitude: 0 to 15,000 ft (0 to 4570m) • Operating temperature ◦ At sea level: 32 to 104℉ (0 to 40℃) ◦ Up 10,000 ft: 32 to 77℉ (0 to 25℃) ◦ Derating 2.7℉/10000 ft (1.5℃/1000 ft) • Operating humidity: 10 to 85% relative humidity (noncondensing) • Operating altitude: 0 to 10,000 ft (0 to 3000m)

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Table 12. Wireless LAN and 3G Specifications

SRST Specifications	
SRST specifications	• Packet fax and voice DSP module PVDM2-16 FXS voice-port specifications: • Tip and ring interfaces for each FXS port (subscriber line interface card [SLIC]) • Ring voltage • Ring frequency • Ring waveform • Ring load • Ringer Equivalence Number (REN) • Loop resistance • On- and off-hook characteristics • On-hook voltage (tip and ring) • Off-hook current • RJ-11 FXS port terminating impedance option BRI voice-port specifications: • Interface type • Compliance • Safety conformance • ITU compliance • Interface • ISDN digital access • Physical connector • Phantom power
Wireless Specifications	
Radio frequency band	• 2.4 GHz
Data rates supported	• 802.11b: 1, 2, 5.5, 6, 9, and 11 Mbps • 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps • 802.11n: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54, and m0-m15
Maximum transmit power (2-channel aggregate)	**Note:** Maximum power setting is subject to changes by channel and by region, depending on regulations. • 802.11b 20 dBm • 802.11g 17 dBm • 802.11n 16 dBm
3G specifications	
Data rates	• CDMA: 850 and 1900 MHz • HSDPA: 850, 900, 1900, and 2100 MHz

DSL Specifications

Tables 13 through 21 list the DSL features specifications and DSL access multiplexer (DSLAM) interoperability support for the Cisco 880 Series Routers. For more information and details about DSLAM and line-card interoperability, please refer to the following document: What Is Cisco ISR and ISR G2 xDSL Interoperability?

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Table 13. DSL Features Specifications

DSL Specifications	
Multimode DSL (VDSL2 and ADSL2/2+) **(886VA and 887VA models)**	• Broadcom Chipset • Dying gasp • IEEE 802.1q VLAN tagging • Independent DSL firmware loading VDSL2 • ITU G.993.2 (VDSL2) • 997 and 998 band plans • VDSL2 profiles: 8a, 8b, 8c, 8d, 12a, 12b, and 17a • U0 band support (25-276 kHz) • Ethernet PTM mode only based on IEEE 802.3ah 64/65 octet encapsulation • DELT Diagnostics Mode ADSL2/2+ • ADSL over basic telephone service with Annex A and Annex B ITU G. 992.1 (ADSL), G.992.3 (ADSL2), and G.992.5 (ADSL2+) • ADSL over basic telephone service with Annex M (extended upstream bandwidth) G.992.3 (ADSL2) and G.992.5 (ADSL2+) ◦ Cisco 887VA-M is optimized for PSD Mask EU-64 M9. ◦ Cisco 887VA-M supports UK Annex M. • G.994.1 ITU G.hs • Reach-extended ADSL2 (G.922.3) Annex L for increased performance on loop lengths greater than 16,000 feet from central office • T1.413 ANSI ADSL DMT issue 2 compliance • DSL Forum TR-067 conformity • Inpulse Noise Protection (INP) and extended INP • Downstream Power Back-Off (DPBO) • ATM mode only
ADSL specifications **(886 and 887 models)**	• ST-Microelectronics 20190 Chipset • ADSL over basic telephone service with Annex A and Annex B ITU G. 992.1 (ADSL), G.992.3 (ADSL2), and G.992.5 (ADSL2+) • ADSL over basic telephone service with Annex M (extended upstream bandwidth) G.992.3 (ADSL2) and G.992.5 (ADSL2+) ◦ Cisco 887-M is optimized for PSD Mask EU-64 M9 ◦ Cisco 887M supports UK Annex M only with Huawei 5300 DSLAM and its EADB line card with customer-premises-equipment (CPE) firmware Version 4.0.17 • G.994.1 ITU G.hs • Reach-extended ADSL2 (G.922.3) Annex L for increased performance on loop lengths greater than 16,000 feet from central office • T1.413 ANSI ADSL DMT issue 2 compliance • DSL Forum TR-067 conformity • Does not provide interoperability with carrierless amplitude modulation/phase modulation (CAP)-based ADSL lines • Dying gasp • IEEE 802.1q VLAN tagging with Cisco IOS Software Release 15.1(1)T or later
VDSL2 specifications **(887V models)**	• Broadcom Chipset • ITU G.993.2 (VDSL2) over basic telephone service only • 997 and 998 band plans, over basic telephone service only • VDSL2 profiles supported: 8a, 8b, 8c, 8d, 12a, 12b, and 17a • U0 band support (25276 kHz) • Ethernet PTM mode only based on IEEE 802.3ah 64/65 octet encapsulation • DELT Diagnostics Mode • IEEE 802.1q VLAN tagging

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DSL Specifications	
G.SHDSL (ATM mode) specifications (Cisco 888)	• Conexant/Ikanos Chipset • 2- and 4-wire modes • Symmetrical WAN speeds up to 2.304 Mbps over a single copper pair and up to 4.608 Mbps over two copper pairs using ITU-T G.991.2 Annex A and Annex B • Wetting current (Section A.5.3.3 of G.991.2) • Dying gasp; uses power status bit (Section 7.1.2.5.3 of G.991.2) for signaling
G.SHDSL (EFM mode) specifications (Cisco 888E)	• Conexant/Ikanos Chipset • 2-wire mode • Symmetrical WAN speeds up to 2.304 Mbps over a single copper pair using ITU-T G.991.2 Annex A and Annex B • Symmetrical WAN speeds from 768 kbps to 5.696 Mbps over a single copper pair using ITU-T G.991.2 Annex F and Annex G • Symmetrical WAN speeds up to 22.784 Mbps over four copper pairs using IEEE 802.3ah EFM bonding • Wetting current (Section A.5.3.3 of G.991.2) • Dying gasp; uses power status bit (Section 7.1.2.5.3 of G.991.2) for signaling • Rate adaption
Multimode G.SHDSL (EFM/ATM) specifications (Cisco 888EA)	• Lantiq Chipset • 4-pair support • Compliance with standard based on ITU Recommendation G.991.2 • Support for G.SHDSL Annexes A (U.S. signaling) and B (European signaling) • Support for Annexes F and G • Symmetrical WAN speeds up to 1 x 2304 kbps over single copper pair, up to 2 x 2304 kbps over two copper pairs, up to 3 x 2304 kbps over three copper pairs, and up to 4 x 2304 kbps over four copper pairs using ITU-T G.991.2 Annexes A and B • Symmetrical WAN speeds up to 1 x 5696 kbps over single copper pair, up to 2 x 5696 kbps over two copper pairs, up to 3 x 5696 kbps over three copper pairs, and up to 4 x 56964 kbps over four copper pairs using ITU-T G.991.2 Annexes F and G • Support for EFM bonding; supports up to four SHDSL pairs bonding • In ATM mode, support for maximum of 8 permanent virtual circuits (PVCs) • Support for dying gasp and wetting current • Support for point-to-point configuration • Support for 802.1Q, QinQ, trunk, and VLAN tagging • Support for ATM CoS and IP QoS features, 802.1P, and DSCP • Support for EFM (IEEE 802.3ah) OA&M • Ability to configure multiple G.SHDSL EFM EHWICs per Cisco 1921, 1941, 2900, and 3900 Series Routers • Compliance with single RJ-45 connector system requirements

Table 14. Multimode DSL DSLAM Interoperability for Cisco 887VA

DSLAM	VDSL2 over Basic Telephone Service Line-Card Chipset
ZTE 9806	Broadcom
Huawei MA5600	Broadcom

Table 15. Multimode DSL DSLAM Interoperability for Cisco 886VA

Siemens HIX 5300	Infineon
ECI 480	Infineon
Alcatel ASAM 7300	Globespan

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Table 16. ADSL-over-ISDN DSLAM Interoperability for Cisco 886

DSLAM	ADSL2/2+ over ISDN Line-Card Chipset
Siemens HIX 5300	Infineon
ECI 480	Infineon
Alcatel ASAM 7300	Globespan

Table 17. ADSL over Basic Telephone Service DSLAM Interoperability for Cisco 887 and 887M

DSLAM	ADSL2/2+ over Basic Telephone Service Line-Card Chipset
Alcatel ASAM 7300	Broadcom (Annex A and Annex M)
ECI 480	Infineon (Annex A and Annex M)
Ericsson	Broadcom (Annex A and M)
Huawei 5600	Globespan (Annex A only)
Lucent Stinger	Globespan (Annex A and Annex M)

Table 18. VDSL2 DSLAM Interoperability for Cisco 887V

DSLAM	VDSL2 over Basic Telephone Service Line-Card Chipset
ZTE 9806	Broadcom
Huawei MA5600	Broadcom

Table 19. G.SHDSL DSLAM Interoperability for Cisco 888

DSLAM	G.SHDSL (2- and 4-Wire) Line-Card Chipset
ECI Hi-Focus SAM 480	Infineon
Alcatel ASAM7300	Conexant/Ikanos
Lucent Stinger	Conexant/Ikanos
Siemens Hix-5300	Infineon

Table 20. G.SHDSL DSLAM Interoperability for Cisco 888E

DSLAM	G.SHDSL (2- and 4-Wire) Line-Card Chipset
Huawei 5603	Infineon
Alcatel ISAM 7302	Infineon
Hatteras HN4000e	Infineon

Table 21. Multimode G.SHDSL DSLAM Interoperability for Cisco 888EA-K9

DSLAM	G.SHDSL (4-Pair) Line-Card Chipset
Huawei 5603	Infineon
Alcatel ISAM 7302	Infineon
Hatteras HN4000e	Infineon
Alcatel ASAM 7300	
Lucent Stringer	
ECI 480	
Alcaltel ISAM_7330_FTTN	
Actelis ML698	

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Ordering Information

Table 22 lists ordering information for the Cisco 880 Series. To place an order, visit the Cisco ordering homepage.

Table 22. Ordering Information

Part Number	Product Name
Ethernet	
CISCO881-K9	Cisco 881 Ethernet Security Router
C881-CUBE-K9	Cisco 881 Ethernet Security Router with integrated CUBE Licenses
CISCO881-SEC-K9	Cisco 881 Ethernet Security Router with Advanced IP Services
CISCO881W-GN-A-K9	Cisco 881 Ethernet Security Router with 802.11n FCC Compliant
CISCO881W-GN-E-K9	Cisco 881 Ethernet Security Router with 802.11n ETSI Compliant
CISCO881W-GN-P-K9	Cisco 881 Ethernet Security Router with 802.11n Japan Compliant
Ethernet and 3G	
CISCO881G-K9	Cisco 881 Ethernet Security Router with 3G
CISCO881GW-GN-A-K9	Cisco 881 Ethernet Security Router with 3G, 802.11n FCC Compliant
CISCO881GW-GN-E-K9	Cisco 881 Ethernet Security Router with 3G, 802.11n ETSI Compliant
CISCO881G-S-K9	Cisco 881G Ethernet Security Router with 3G Sprint
CISCO881G-V-K9	Cisco 881G Ethernet Security Router with 3G Verizon
CISCO881G-A-K9	Cisco 881G Ethernet Security Router with 3G GSM North America
C881G-U-K9	Secure Router with WAN FE and Embedded 3.5G HSPA with SMS/GPS
C881G-S-K9	Secure Router with WAN FE and Embedded 3G EVDO Rev A with SMS/GPS for Sprint Networks
C881G-V-K9	Secure Router with WAN FE and Embedded 3G EVDO Rev A with SMS/GPS for Verizon Wireless Networks
C881G-B-K9	Secure Router with WAN FE and Embedded 3G EVDO Rev A with SMS/GPS for BSNL Networks
C881G+7-K9	Secure Router with WAN FE and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
C881G+7-A-K9	Secure Router with WAN FE and Embedded 3.7G HSPA+ Release 7 with SMS/GPS for AT&T Networks
Multi-mode DSL (VDSL2 and ADSl2/2+)	
CISCO886VA-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN
CISCO886VA-SEC-K9	Cisco 886VA Secure router with VDSL2/ADSL2+ over ISDN
C886VA-CUBE-K9	Cisco 886VA Secure router with VDSL2/ADSL2+ over ISDN and integrated CUBE licenses
CISCO887VA-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS
CISCO887VA-SEC-K9	Cisco 887VA Secure router with VDSL2/ADSL2+ over POTS
CISCO887VA-M-K9	Cisco 887VA Annex M router
C887VA-CUBE-K9	Cisco 887VA router with VDSL2/ADSL2+ over ISDN and integrated CUBE licenses
Multi-mode DSL (VDSL2 and ADSl2/2+) with WLAN	
C886VA-W-E-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN with 802.11n ETSI Compliant
C887VA-W-A-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS with 802.11n FCC Compliant
C887VA-W-E-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS with 802.11n ETSI Compliant
C887VAM-W-E-K9	Cisco 887VA Annex M router with 802.11n ETSI Compliant

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Part Number	Product Name
Multi-mode DSL (VDSL2 and ADSl2/2+) with Embedded 3G	
C886VAG+7-K9	Secure Router with VDSL2/ADSL2+ over ISDN and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
C887VAG-S-K9	Secure Router with VDSL2/ADSL2+ over POTS and Embedded 3G EVDO Rev A with SMS/GPS for Sprint Networks
C887VAG+7-K9	Secure Router with VDSL2/ADSL2+ over POTS and Embedded 3.7G HSPA+ Release 7 with GPS
C887VAMG+7-K9	Secure Router with Raiders VDSL2/ADSL2+ over POTS (Annex M) and Embedded 3.7G HSPA+ Release 7 with GPS
ADSL2/2+	
CISCO886-K9	Cisco 886 ADSL2/2+ Annex B Router
CISCO886-SEC-K9	Cisco 886 ADSL2/2+ Annex B Security Router with Advanced IP Services
CISCO886W-GN-E-K9	Cisco 886 ADSL2/2+ Annex B Router with 802.11n ETSI Compliant
CISCO887-K9	Cisco 887 ADSL2/2+ Annex A Router
CISCO887-SEC-K9	Cisco 887 ADSL2/2+ Annex A Security Router with Advanced IP Services
CISCO887W-GN-A-K9	Cisco 887 ADSL2/2+ Annex A Router with 802.11n FCC Compliant
CISCO887W-GN-E-K9	Cisco 887 ADSL2/2+ Annex A Router with 802.11n ETSI Compliant
CISCO887M-K9	Cisco 887 ADSL2/2+ Annex M Router
CISCO887MW-GN-E-K9	Cisco 887 ADSL2/2+ Annex M Router with 802.11n ETSI Compliant
ADSL2/2+ and 3G	
CISCO886G-K9	Cisco 886 ADSL2/2+ Annex B Router with 3G
CISCO886GW-GN-E-K9	Cisco 886 ADSL2/2+ Annex B Router with 3G, 802.11n ETSI Compliant
CISCO887G-K9	Cisco 887 ADSL2/2+ Annex A Router with 3G
CISCO887GW-GN-A-K9	Cisco 887 ADSL2/2+ Annex A Router with 3G, 802.11n FCC Compliant
CISCO887GW-GN-E-K9	Cisco 887 ADSL2/2+ Annex A Router with 3G, 802.11n ETSI Compliant
VDSL2	
CISCO887V-K9	Cisco 887 VDSL2 over POTS Router
CISCO887V-SEC-K9	Cisco 887 VDSL2 over POTS Security Router with Advanced IP Services
CISCO887VW-GNA-K9	Cisco 887V VDSL2 Router with 802.11n FCC Compliant
CISCO887VW-GNE-K9	Cisco 887V VDSL2 Router with 802.11n ETSI Compliant
VDSL2 and 3G	
CISCO887VG-K9	Cisco 887V VDSL2 Router with 3G
CISCO887VGW-GNA-K9	Cisco 887V VDSL2 Router with 3G, 802.11n FCC Compliant
CISCO887VGW-GNE-K9	Cisco 887V VDSL2 Router with 3G, 802.11n ETSI Compliant
G.SHDSL (ATM)	
CISCO888-K9	Cisco 888 G.SHDSL Router
C888-CUBE-K9	Cisco 888 G.SHDSL Router with integrated CUBE licenses
CISCO888-SEC-K9	Cisco888 G.SHDSL Security Router with Adv IP Services
CISCO888W-GN-A-K9	Cisco 888 G.SHDSL Router with 802.11n FCC Compliant
CISCO888W-GN-E-K9	Cisco 888 G.SHDSL Router with 802.11n ETSI Compliant
G.SHDSL (EFM)	
CISCO888E-K9	Cisco 888E G.SHDSL Router with 802.3ah EFM Support
CISCO888EW-GN-A-K9	Cisco 888E G.SHDSL Router with 802.11n FCC Compliant and 802.3ah EFM Support
CISCO888EW-GN-E-K9	Cisco 888E G.SHDSL Router with 802.11n ETSI Compliant and 802.3ah EFM Support
C888E-CUBE-K9	Cisco 888E G.SHDSL Router with 802.3ah EFM Support and integrated CUBE licenses
Multimode G.SHDSL (EFM/ATM)	
C888EA-K9	Cisco Multimode 888EA G.SHDSL (EFM/ATM) Router with 802.3 ah EFM Support

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Part Number	Product Name
G.SHDSL (ATM) and 3G	
CISCO888G-K9	Cisco 888 G.SHDSL Router with 3G
CISCO888GW-G-NA-K9	Cisco 888 G.SHDSL Router with 3G, 802.11n FCC Compliant
CISCO888GW-G-NE-K9	Cisco 888 G.SHDSL Router with 3G, 802.11n ETSI Compliant
G.SHDSL (EFM) and 3G	
C888EG+7-K9	Secure Router with Ethernet over G.SHDSL (EFM) and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
Voice Gateway	
C887VA-V-K9	Cisco887, V/ADSL2 WAN, 4 FXS, 2BRI, 1ISDN
C887VA-V-W-E-K9	Cisco887, V/ADSL2, 4 FXS, 2BRI, 1ISDN, 2.4GHz
C881-V-K9	Cisco881, FE WAN, 4 FXS, 2BRI, 1FXO
SRST	
C881SRST-K9	Cisco 881 SRST Ethernet Security Router with FXS, FXO
C881SRSTW-GN-A-K9	Cisco 881 SRST Ethernet Security Router with FXS, FXO; 802.11n FCC Compliant
C881SRSTW-GN-E-K9	Cisco 881 SRST Ethernet Security Router with FXS, FXO; 802.11n ETSI Compliant
C888SRST-K9	Cisco 888 SRST G.SHDSL Router with FXS, BRI
C888SRSTW-GN-A-K9	Cisco 888 SRST G.SHDSL Router with FXS, BRI; 802.11n FCC Compliant
C888SRSTW-GN-E-K9	Cisco 888 SRST G.SHDSL Router with FXS, BRI; 802.11n ETSI Compliant
Teleworker	
C881W-GN-A-K9	Cisco 881 Ethernet Security Router with 802.11n FCC Compliant
C881W-GN-E-K9	Cisco 881 Ethernet Security Router with 802.11n ETSI Compliant
C881W-GN-P-K9	Cisco 881 Ethernet Security Router with 802.11n Japan Compliant
POE	
800-IL-PM=2	2 port 802.3af capable inline power module for 880 routers
DRAM	
MEM8XX-256U512D	256-MB DRAM upgrade to 512 MB for Cisco 880 Series Routers
MEM8XX-256U768D	512-MB DRAM upgrade to 768 MB for Cisco 880 Series Routers
MEM8XX-512U768D	512-MB DRAM upgrade to 768 MB for Cisco 880 Series Routers
3G Modem	
PCEX-3G-CDMA-V	Cisco 3G EVDO Rev A/0/1xRTT Modem-Verizon Networks
PCEX-3G-CDMA-S	Cisco 3G EVDO Rev A/0/1xRTT Modem-Sprint Networks
PCEX-3G-CDMA-B	Cisco 3G EVDO Rev A/0/1xRTT Modem-BSNL Networks
PCEX-3G-HSPA-US	Cisco 3.5G HSPA/UMTS/EDGE/GPRS Modem-AT&T Network Only
PCEX-3G-HSPA-G	Cisco 3.5G HSPA/UMTS/EDGE/GPRS Modem-Global Networks (Global SKU, excluding USA)
Cisco IOS Universal Software for Cisco 880	
S880DUDK9*	Cisco 880 Series IOS UNIVERSAL DATA
S880VUDK9*	Cisco 880 Series IOS UNIVERSAL VOICE
Software License for Cisco 880 Data	
SL-880-ADSEC (default)	Cisco 880 Advanced Security Image Feature License
SL-880-AIS (upgrade option)	Cisco 880 Advanced IP Services Image Feature License
SL-880-ADVSEC-NPE	Cisco 880 Advanced Security NPE License PAK (Paper)
SL-880-AIS-NPE (upgrade option)	Cisco 880 Advanced IP Services NPE License PAK (Paper)
Software License for Cisco 880 Data (Bulk)	
L-SL-800-SEC-K9	Advanced IP e-Delivery PAK for Cisco 800 Series

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Part Number	Product Name
Software License for Cisco 880 SRST and CUBE	
SL-SRST880-AIS (included by default)	Cisco 880 Advanced IP Services Image Feature License
SL-880-AIS and SL-880-ADVSEC (included by default)	Cisco 880 Advanced IP Services and Security Image Feature License for 3G, Embedded 3G and CUBE models
Security Services	
SL-CNFIL-88x-1Y	One year subscription to Content Filtering for Cisco 881/888-URL/Phishing
SL-CNFIL-8xx-TRI	30 day free trial license for 88x series
SSL	
FL-WEBVPN-10-K9	Feature License SSL VPN for Up to 10 Users (incremental), for 12.4T based IOS releases only
FL-SSLVPN10-K9	Feature License SSL VPN for Up to 10 Users (incremental), for 15.x based IOS releases only
Router Software	
C880data-universalk9-mz	Universal image for Cisco 880 ISR Data Router Series
C880voice-universalk9-mz	Universal image for Cisco 880 SRST and CUBE Router Series
Access Point Software	
ap801-k9w7-tar	Autonomous software image for ap801
ap801-rcvk9w8-tar	LWAPP recovery image for ap801

* Each software part number has the Cisco IOS Software release number at the end of the string. For example, the part number of IOS 12.4(20)T data universal image for Cisco 880 series is S880DUK9-12420T.

Cisco License Manager is a secure client- and server-based application used to manage Cisco IOS Software activation and licenses. For more information about Cisco License Manager, visit http://www.cisco.com/go/clm.

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